

SAN VICENTE DAM

At the north end of Moreno Avenue, 6300 feet north of the
intersection of Moreno Avenue and Vigilante Road

Lakeside

San Diego County

California

HAER CA-2267

CA-2267

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

U.S. Department of the Interior

1849 C Street NW

Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

SAN VICENTE DAM

HAER No. CA-2267

Location: At the north end of Moreno Avenue approximately 6,300 ft. north of the intersection of Moreno Avenue and Vigilante Road. In the city of Lakeside, San Diego County, California.

USGS San Vicente Reservoir Quadrangle, 7.5'
Universal Transverse Mercator Coordinates: 11 507104 3641390
West 1/2 of Section 31, T14S, R1E (SBBM)

Construction Date: 1941-1943

Engineer: Fred D. Pyle, Hydraulic Engineer, City of San Diego
Julian Hinds, Chief Engineer and General Manager, Metropolitan Water District of Southern California (consultant)

Builder: Arundel Corporation, Baltimore, Maryland
L.E. Dixon Company, San Gabriel, California

Present Owner: City of San Diego
12375 Moreno Avenue
Lakeside, CA 92040-1135

Present Use: The San Vicente Dam is currently being used to provide water storage (with the associated reservoir) and flood containment for San Diego County.

Significance: The San Vicente Dam has played an important role in the San Diego water system for the last 60 years. Although it was not the first dam in San Diego County, it supports a system of dams and reservoirs and plays a crucial role in storing both local runoff and water brought to San Diego from the Colorado River. It also helps prevent future floods in San Diego. The period during which the dam was constructed represented the end of a significant era of dam building that attempted to meet San Diego's water needs through local sources and to control the threat of disastrous flooding.

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The San Vicente Dam is located on San Vicente Creek, approximately 3.5 miles north of Lakeside in San Diego County (Figures 1 and 2). The watershed area is approximately 75 square miles.

I. HISTORICAL INFORMATION

San Vicente Dam History

San Diego's history has long been interlaced with that of water resources. From early settlement, water supply was a constant concern. Because most of San Diego's rain falls in winter onto nearly impermeable clay soils, flooding has also been an ever-present threat. Significant floods in 1916 and 1937 played a pivotal role in the decision to build several dams throughout the county. Many of these dams created reservoirs that were used to control the county water supply. From 1917 to 1943, seven dams including San Vicente Dam were constructed in San Diego County.¹

The history of the San Vicente Dam began more than a decade before its construction. In 1925, the City of San Diego (City) started leasing the San Dieguito Water Company's system, with an option to purchase. The following year, the City electors voted to issue bonds in the amount of \$2,000,000 to acquire certain water rights and to build the Sutherland Dam, Sutherland Aqueduct, and San Vicente Dam.² In 1928, after only one year of construction, work on the Sutherland Dam was halted due to political reasons. The remaining money from the bond measure was held in the El Capitan Dam fund by the City for future projects. The El Capitan Dam was completed within a few years in 1935. The Sutherland Dam was not completed until 1954 due to foundation problems that arose during its construction.

At the same time, the City applied to the Division of Water Resources of the State of California for rights to a portion of the Colorado River water that was going to be diverted to California. Studies relating to the proposed diversion were overseen by Hiram N. Savage, Hydraulic Engineer for the City.³ Savage died in 1934 with his work unfinished. He was succeeded by Fred D. Pyle, who made a systematic investigation of the water supply problem of San Diego. In addition to considering importation of water from the Colorado River, Pyle looked at possibly obtaining additional water from local sources. His report favored the development of local water before importation of Colorado River water.⁴

But local water rights were of some debate in San Diego County. There were several legal battles that culminated in a case before the Supreme Court in 1930. The ruling favored the City's

¹ Hill 2002

² Fowler, 1953:70

³ San Diego County Water Authority 1946:46

⁴ *ibid*:49

position, stating that San Diego had prior and paramount rights to the water of the San Diego River through the rights of the pueblo of San Diego. This ruling left the City free to continue to look for ways to capitalize on local water sources to supply the county's burgeoning population.

By the late 1930s, City officials began stressing the need for a new reservoir to supplement the Sutherland and El Capitan Dams. They proposed the San Vicente Dam, which could be built just west of the El Capitan Dam. It would be connected by pipes to the El Capitan and Sutherland Reservoirs and would store runoff from both the San Vicente watershed and these reservoirs.⁵ This would allow for increased capacity during unseasonably rainy periods. The City argued that the San Vicente Dam was also a good choice because the area covered by the reservoir would be small compared to most other dams in the county. With less surface area, the water in the San Vicente Reservoir would be slow to evaporate.

Although the main purpose of the San Vicente Dam was to provide water storage for San Diego, an important secondary purpose was flood control. From 1936 to 1937, San Diego had unusually high levels of rain. This caused flooding throughout San Diego County. Even though El Capitan Dam held back much of the water in the San Diego River, the river still rose to a level just short of the top of a dike that had been constructed to divert water past Old Town San Diego and out to Mission Bay. Had the San Vicente Dam been built, some contend that it would have held back much of that overflow.⁶ Heavy rains in early 1938 also caused extensive flooding in the San Vicente Creek area. Large parts of the area between Lakeside and the now-defunct town of Foster were covered in water that threatened to take away residences.

During this time, preparations were being made to construct the All-American Canal. The Boulder Canyon Project Act authorized the construction of the All-American Canal and the Imperial Dam in 1928. The All-American Canal was built by the United States Bureau of Reclamation during the 1930s, and in 1940 the first water was delivered to Imperial Valley. The 82-mile gravity-flow All-American Canal begins at Imperial Dam on the Colorado River about 20 miles northeast of Yuma, Arizona. The All-American Canal drops 175 feet between Imperial Dam and Westside Main Canal. The All-American Canal extends south and west along the Mexican/American border. When the canal and the Imperial Dam were both more than 75 percent complete, a citizens' report was prepared by a committee regarding use of the water from the canal and construction of new water-retaining facilities in San Diego. After seven months of study on the subject, the committee recommended to the City Council that the San Vicente Dam be built to safeguard San Diego's claim to water from the Colorado River.⁷ The committee stated that:

The near future needs of the city require the taking of immediate steps to provide additional water from local resources and to perfect [sic] our right to use Colorado River water by providing means of taking water at the point of delivery fixed by the U.S. government as Imperial Dam.⁸

⁵ Mayrhofer 1938: San Diego Historical Society vertical file

⁶ *ibid*

⁷ *San Diego Sun*, 3/5/1938

⁸ *ibid*

The committee cited several reasons for choosing to advocate construction of the San Vicente Dam:

It always has been an approved unit of all plans and proposal for local development. Its capital cost is low compared with other projects...the city already owns the dam and reservoir sites and holds a clear title to the water rights. The project can qualify for federal aid, both for water conservation and flood control. It would also be completion of another unit in the development of the San Diego river water resources.⁹

In late March 1938, the City Council made a policy decision to ask the voting public to ratify the All-American Canal contract and approve a bond to construct the San Vicente Dam.¹⁰ The Council planned to present both propositions to the San Diego voters simultaneously. At that time, the City expressed hopes that they could fund portions of the \$4,000,000 project with federal aid, but up to \$1,500,000 would most likely be funded by a bond issue.¹¹ The estimated cost for construction of the dam would change several times as the City completed preconstruction studies and altered the plans accordingly.

In April 1938, it looked like the San Vicente Dam might become a reality. President Roosevelt revived the Public Works Administration (PWA), a program that provided for federal funding of up to 55 percent on projects for which communities advanced the remainder.¹² The San Vicente Dam, a prime candidate for such a program, was approved by the City council and was to be placed on the ballot for the August primaries. Before long, the City appropriated \$10,000 for preparation of plans for the dam to be used either as the basis for a bond issue or for government funding.¹³

San Diego had several smaller projects already under way using funding under the Works Progress Administration (WPA) program. The WPA was similar to the PWA but differed in its use of labor. Under the WPA, the government furnished the labor and \$5 per month for each man employed. That money was to be used to purchase materials.¹⁴ This program apparently fulfilled its purpose of employing those who were out of work and some San Diego projects were cancelled because there was no available labor. Because of this, the PWA program seemed like a more promising program for the San Vicente Dam.

In May 1938, the City asked the federal government for PWA aid for the projected \$6,500,000 dam construction project. At the time, a 275-foot dam was proposed so that floodwaters could more easily be held back.¹⁵ Apparently, the bond issue was not placed on the August ballot and in September, the City stated that it was preparing to present it in a special election in January 1939.¹⁶ By this time, the planned height for the dam had reverted back to 190 feet. It was

⁹ *San Diego Tribune*, 3/5/1938

¹⁰ *San Diego Union*, 3/30/1938

¹¹ *San Diego Tribune*, 3/30/1938

¹² *San Diego Sun*, 4/10/1938

¹³ *San Diego Sun*, 4/26/1938

¹⁴ *San Diego Sun*, 4/10/1938

¹⁵ *San Diego Union*, 5/24/1938

¹⁶ *San Diego Union*, 9/24/1938

expected the City would pay \$1,925,000 and the federal government would provide the remaining 45 percent of the cost.¹⁷

However, the bond issue was again moved, this time to April 1939. It was announced that the dam would take two years to build, provide work for 400 men, and eventually supply water to 40,000 people.¹⁸ The virtues of the dam were heavily promoted, and it was said to serve several functions, including holding runoff from San Vicente Creek; holding the flood waters of El Capitan and Sutherland Dams; performing some of the functions of Lake Hodges Dam and removing the necessity to raise it; and providing a reservoir that would hold nearly as much as all of the current reservoirs put together.¹⁹

In 1939, San Diego experienced another heavy rainy season, which quickly filled area reservoirs to capacity. Despite the best efforts to extol the virtues of the dam, the San Vicente Dam bond in the election of April 1939 fell just short of the two-thirds vote needed to pass it. Because the rains had been so generous the last few years, residents saw no urgent need for the dam, reservoir, and expanded facilities. This mindset would prove to be folly, as the area was experiencing rapid growth and the water supply would soon be inadequate. The City was encouraged, however, by the ratification of the All-American Canal contract during the same election. This protected San Diego's rights to 100,000,000 gallons of Colorado River water daily and provided insurance against future drought.²⁰

The following year, the City tried a different approach to get the dam construction underway, this time at a cost of \$2,000,000. The City planned to use \$500,000 of the \$630,000 remaining from the construction of the Sutherland Dam and to obtain the rest from federal funding. The local construction community protested this plan, stating that there was little room in dam construction for the unskilled labor that the federal programs would bring.²¹ Nevertheless, the City submitted their application for funds.

An additional problem arose during this time, however, when the State of California noted that the creation of the San Vicente Reservoir would impact one of its roads, Highway 198 (also called the Lakeside-Ramona Highway). A State Highway since 1933, portions of this road would be covered by the San Vicente Reservoir once the dam was completed. Consequently, the City was tasked with relocating the Shady Dell to Foster portion of the highway. Federal funding would be withheld until the City could find a new location for the road.²² The problem was finally resolved when the City agreed to leave the road open during dam construction, allowing ample time to relocate the road.

In August 1940 the cost for the dam was reassessed and projected at \$3,550,000.²³ This new cost would accommodate the relocation of the State Highway and construction of a pipeline

¹⁷ *San Diego Union*, 9/24/1938

¹⁸ *San Diego Tribune*, 4/10/1939

¹⁹ *ibid*

²⁰ *San Diego Union*, 4/27/1939

²¹ *San Diego Union*, 3/13/1940

²² *San Diego Union*, 5/13/1940

²³ *San Diego Union*, 8/3/1940

connecting the San Vicente Dam with the El Capitan Dam. It was projected that the bond could be repaid in 30 years, using profits from the sale of water.²⁴

By this time, there were new reasons for building the dam, mainly the increased population due to the influx of people during the early years of World War II. Fred Pyle, City Engineer, pointed out that is normal growth occurred for the next five years, the City would grow by 30,000 people. With the increased war-related population, that number was expected to top 50,000. Pyle maintained that city water was only barely sufficient at its current level.²⁵ Unfortunately, it was the war effort that also put a halt to potential federal funding because the labor could not be spared for nondefense-related projects.²⁶

Nevertheless, plans continued for the new dam and on November 5, 1940, Propositions 1 and 2 were put up for election to provide a total \$4,300,000: \$3,000,000 for construction of San Vicente Dam and \$1,300,000 for improvements to the water distribution system. This bond was endorsed by several organizations, including the Realty Board, Consolidated Aircraft Corporation, and the Native Sons of the Golden West.²⁷ Members of the Realty Board stated:

In the last 25 years our water development has managed to keep just a step ahead of the city's needs. This was because citizen groups worked side by side with city officials in making the public conscious of the problem...we must now take the next logical step, which is San Vicente, and take it without delay in view of the pace at which San Diego is growing.²⁸

Major Edgar Gott, Vice President of Consolidated Aircraft Corporation state "Our firm is not inclined to add to our facilities except in San Diego, provided this community can lend the facilities demanded by an expansion program."²⁹

The bond finally received sufficient support to pass in the fall of 1940. The start of the project, however, was delayed for several months due to a shortage of engineering specialists. Construction began almost a year later. The first cement was poured in April 1942 and the dam was finished in March 1943.³⁰ The construction of the San Vicente Dam helped alleviate a water crisis that the residents of San Diego were suffering from due to a rapid rise in population and water demand, as well as a period of drought in 1942, which left the then current water reservoirs at levels too low to support the ever increasing population.³¹

Soon after construction, the San Vicente Dam also fulfilled its duty as a reservoir for Colorado River water. San Vicente Dam was one of the last structures to complete the system of reservoirs, aqueducts, and dams that brought and/or held water for San Diego County. While

²⁴ *San Diego Union*, 8/7/1940

²⁵ *San Diego Union*, 8/3/1940

²⁶ *San Diego Union*, 8/7/1940

²⁷ *San Diego Union*, 9/19/1940; 9/20/1940

²⁸ *San Diego Union*, 9/19/1940

²⁹ *San Diego Union*, 9/27/1940

³⁰ Fowler 1953:76; Southwest Builder and Contractor 1942:17

³¹ Pryde 1992:127

some of San Diego's dams and reservoirs contain water that comes from natural runoff, San Vicente is one of 11 reservoirs that also gets water from the Colorado River.³² This was all made possible through partnerships with the City and the water districts. In 1944, the San Diego County Water Authority (Water Authority) was formed, and the City of San Diego became a member agency. The Water Authority joined the Metropolitan Water District of south California (MWD), which was formed in 1928 to transport water from the Colorado River to Southern California. The first objective of the Water Authority was to construct a pipeline system that would connect the county's water system to the MWD water supply system. In 1947, the first waters from the Colorado River flowed through the MWD system to the San Vicente Reservoir. From this point on, San Diego was no longer dependent on small, local sources for water.³³

Dam and Construction History

Since the 1880s, more than 55 dams have been constructed in San Diego County. San Vicente Dam was the last of the gravity dams to be built and is one of only five in the county. The other gravity dams in San Diego County were built much earlier and include Sweetwater (1888), Savage (1919), Barrett (1922), and Fairbanks (1927). There are 110 gravity dams in California, making them the second most numerous type of dam. The highest numbers of gravity dams, in descending order, are in the counties of Tuolumne, El Dorado, Los Angeles, Shasta, San Diego, and Fresno. More than half of the California gravity dams were built in either the 1920s-1930s or the 1950s-1960s. Only nine were built in the 1940s, and San Vicente Dam was the only one built in that decade in southern California. Despite being the only gravity dam in that decade, San Vicente was one of 70 dams built in the United States between 1932 and 1942, but it was by no means the largest.³⁴ In terms of mass, the Grand Coulee, Shasta, and Boulder dams were the largest concrete dams in the world in 1942.³⁵

Gravity-type dams were built as long ago as 4000 B.C., but they were constructed with uncemented masonry.³⁶ The San Vicente Dam is a concrete gravity section dam with a straight axis. A gravity dam is designed to resist the horizontal thrust of water solely based on its own weight. Therefore, they are most commonly made with large volumes of concrete, especially in areas where they need to span wide valleys. Gravity dams are triangular in cross-section, a design that complements the distribution of water pressure. Deeper water puts more pressure on the horizontal plane. Thus, the maximum amount of pressure is located at the base of the dam, while at the surface of the reservoir, there is little pressure.³⁷

If the structure is proportioned well, has an adequate foundation, and is well constructed, it requires little maintenance.³⁸ The ideal location for this type of dam is one constricted in a valley with sound bedrock that is close to the surface on both the floor and the abutments of the dam.³⁹

³² San Diego County Water Authority website: <http://www.sdcwa.org/manage/reservoirs-map.phtml>

³³ Pryde 1922:127-130

³⁴ *Popular Mechanics*, 1942:40

³⁵ *Popular Mechanics*, 1942:45; Wahlstrom 1974:25

³⁶ Portland Cement Association 1980:5

³⁷ <http://www.simsience.org>

³⁸ U.S. Bureau of Reclamation, 1977:329

³⁹ Wahlstrom, 1974:13

A gravity dam is typically composed of cement or masonry, but it can be composed of earth or rock fill. A concrete gravity dam is more expensive than gravity dams built of other materials. It is also more expensive than dams of other designs. For instance, a buttress dam uses 30 to 40 percent less concrete.⁴⁰

Until recently, the properties of concrete dictated that the dams were poured in monoliths to prevent cracking.⁴¹ This was how the San Vicente Dam was built. Construction design was generally the same from one gravity dam to the next. Variations in construction design was generally the same from one gravity dam to the next. Variations in construction were usually in response to the amount of water each dam had to retain. Sometimes, as in the case of the Grand Coulee Dam in Washington, new innovations were used during construction. The Grand Coulee Dam used a system of pipes within the concrete of the dam to help cool the concrete as it dried. This variation allowed for quicker construction of the large dam because the concrete cured much faster than it would have otherwise.

There are numerous gravity dams throughout the world. Two of the more notable ones include the Itaipú Dam (on the border of Brazil and Paraguay), and the Three Gorges Dam in China. The Three Gorges Dam is expected to be completed in 2009 and will overtake the Itaipú Dam as the largest concrete dam in the world. Many of the large gravity dams were constructed to hold large volumes of water for conversion to energy through hydroelectric means. The San Vicente Dam is not used for this purpose; rather it contributes to San Diego's water storage for general consumption. It creates a reservoir with the second highest storage capacity of any dam in San Diego County, behind El Capitan Dam.⁴² The maximum storage capacity of the San Vicente Dam is 90,230 acre-feet, while the El Capitan Dam can store 112,807 acre-feet.

The San Vicente Dam cost \$2,767,021 to build in 1941.⁴³ The Arundel Corporation of Baltimore, Maryland, and the L.E. Dixon Company (Dixon Co.) of San Gabriel, California, were contracted by the City of San Diego to build the dam.⁴⁴ The Dixon Co., which also had the contract for the Sutherland Dam, was chosen to build the San Vicente Dam because they submitted the lowest cost proposal (\$1,743,907).⁴⁵ The Dixon Co. is also noted for building the Los Angeles Sports Arena in 1958 and the Upper Narrows Debris Dam on the Yuba River near Marysville, California. In fact, the Upper Narrows Debris Dam was so similar to the San Vicente Dam in width and depth, that the Dixon Co. was able to use much of the same equipment for both dams.⁴⁶

Other materials, including cast-iron and steel pipes, small gate valves, and grout, were provided by the City. Plans for the San Vicente Dam were prepared by City hydraulic engineer Fred D. Pyle and consultant Julian Hinds. Hinds was chief engineer and general manager of the MWD.⁴⁷

⁴⁰ Portland Cement Association, 1980:31

⁴¹ U.S. Army Corps of Engineers, 1995:2-1

⁴² San Diego County Water Authority website: <http://sdcwa.org/manage/sources-reservoirs.phtml>

⁴³ City of San Diego, 1965:205

⁴⁴ Mermel, 1958:181

⁴⁵ Southwest Builder and Contractor, 1941:22

⁴⁶ *ibid*:22

⁴⁷ *ibid*:22

Before work could start on the dam, the water in the San Vicente River needed to be diverted. This was done by constructing a flume made of timber. Cofferdams of reinforced concrete were also built on the upstream and downstream sides of the dam.⁴⁸

Cement for the dam was furnished by the Southwestern Portland Cement Company under contract to the City.⁴⁹ It was delivered in bulk and the contractor built two large steel storage barrels in which to keep it. The dam was built in 40- to 50-ft. sections, with contraction joints and copper water seals in between.⁵⁰ The forms for the concrete were lined with metal or plywood and made smooth. The concrete was poured in 5-ft. lifts and given a minimum of 90 hours to cure.⁵¹

A 20-ton cableway, spanning more than 1,500 ft., brought the mixed concrete to the storage barrels. Aggregate for the construction was derived from natural deposits in nearby Slaughterhouse Canyon and brought by dump truck to the screening and crushing plant located immediately downstream from the dam.⁵² Water for the construction was pumped from downstream to a 50,000-gallon storage tank on the left abutment of the dam. There, it was cooled to 42 degrees by an automatic ammonia refrigerating plant so that it could be used for mixing concrete.⁵³ Although the equipment has long since been hauled away to be used on another job, the footings for the concrete storage area are still visible on the hillside above the dam.

During the construction of the dam, it was necessary to relocate a paved State Highway (Highway 198) that went through the dam site on the east side of the stream. While the City was grading a new path for the highway, a temporary tunnel was built into the base of the dam to allow cars to pass along the old route. The tunnel was 22 ft. wide and 19.5 ft. tall with a reinforced arch section in the mass concrete.⁵⁴ The City finished relocating the highway before the dam was filled with water and the contractors designed a concrete plug to fill the tunnel.⁵⁵ The entrances to the tunnel were grouted after the plug was installed. Traces of the tunnel can still be observed on the downstream face of the dam near the base. Portions of another road were also flooded by the creation for hauling wood, cattle driving, and by the forest service as a fire patrol road.⁵⁶

II. ARCHITECTURAL DESCRIPTION

The height of the San Vicente Dam is 199 ft. above the streambed, with foundations that sit 20 ft. below the ground.⁵⁷ The board-form concrete dam was designed so that it could eventually be

⁴⁸ Southwest Builder and Contractor, 1942:17

⁴⁹ Southwest Builder and Contractor, 1941:22

⁵⁰ Southwest Builder and Contractor, 1942:16 and 36

⁵¹ Southwest Builder and Contractor, 1941:23

⁵² Southwest Builder and Contractor, 1942:17

⁵³ *ibid*

⁵⁴ Southwest Builder and Contractor, 1941:23

⁵⁵ City of San Diego, 1965:206; Fowler, 1953:70

⁵⁶ *San Diego Union*, 12/25/1938

⁵⁷ City of San Diego, 1965:205

raised to a height of 310 ft.⁵⁸ The following information is based on the article in Southwest Builder and Contractor and the as-built drawings housed at the City of San Diego Water Department. the crest of the dam is 960 ft. long and 14 ft. wide, with a crest elevation of 662.5 ft. AMSL and a thickness of 20 ft. A spillway for uncontrolled overflow is located in the center of the dam and is able to contain 31,000 cu. ft. per second. Its crest is 190 ft. The spillway measures 275 ft. long by 10 ft. deep and has guide walls that direct the overflow. Overflow spillways are practical provided the dam has sufficient crest length for the discharge.⁵⁹ Parapet walls 3.5 ft. high are formed by 2-in. pipe railings along the crest on either side of the spillway. The base of the dam spans 169 ft. at the streambed.

The dam has no complicated structures associated with it. A semicircular outlet tower is on the upstream side of the dam. It is nearly 20 ft. in diameter and has six 30-in. saucer valves for selective level draft control and three 36-in. saucer valves at the bottom of the tower.⁶⁰ Screened vents are placed at different levels to be used for filling the tower, and operating valves are controlled from a platform on top of tower.

An inspection gallery extends longitudinally through the base. An 8-in. gutter, which carries water seepage away, is located along one wall of the gallery. Concrete stairs follow the slopes on either side of the dam. The dam has 8-in. vertical drains (leak wells) and a 12-in. collection drain at the base. The vertical drains are carried through the galleries by cast-iron pipe.

On the slopes above the dam, evidence can still be seen of the concrete mixing plant that was used to create the concrete with the correct consistency for use in the dam construction. The concrete was mixed in two 4-cu. yd. mixers and brought to the structure in 8-cu. yd. buckets that dumped from the bottom.⁶¹

While most of the dam is constructed of board-form concrete, the central section of the foundation and the left abutment are composed of metamorphosed schist. The right abutment is composed of granite. The foundation was grouted to approximately 50 percent of the total height. The San Vicente Reservoir formed by San Vicente Dam can hold 116,900 acre-feet of water and has a safe yield of 5,900 acre-feet per year of 5,300,000 gallons per day.⁶²

⁵⁸ Southwest Builder and Contractor 1942:16. Figures 3 and 4 in the field notes for this survey show the drawings for the dam as they were presented in Southwest Builder and Contractor in 1941.

⁵⁹ Portland Cement Association, 1980:37

⁶⁰ Southwest Builder and Contractor, 1941:22

⁶¹ Southwest Builder and Contractor, 1942:17

⁶² City of San Diego, 1965:205

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3/13/1940 City Seeks WPA Aid in Building \$2,000,000 San Vicente Dam
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8/3/1940 Bond Election Proposed for Vicente Dam
8/7/1940 \$3,000,000 San Vicente Dam Bond Election Favored: WPA Aid Refused because of Defense Needs
9/19/1940 Realty Board Backs Water Propositions; San Vicente Work Urged for Safe Supply
9/20/1940 Native Sons Back Water Proposals

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San Diego Tribune

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3/30/1938 Voters on Pass on Water Bond Issue for San Vicente, Canal Contract

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<http://www.sdcaw.org>

IV. PROJECT INFORMATION

San Vicente Dam was first recorded in 1993 during a survey by Ogden Environmental and Energy Services. At that time, it was given the designation SV-S-11H and a Historic Resources Inventory Form was completed. Subsequently, it was assigned a primary number (P-37-024354) by the State Historic Preservation Office. The dam was given a National Register of Historic Places (NRHP) status code of 4S2. This indicated that the surveyors thought that it might be eligible for the NRHP but more historical or architectural work needed to be performed. In 2002, EDAW, Inc. (then KEA Environmental, Inc.) was retained to assess the dam due to a proposed project to raise the existing dam by 54 feet to provide 52,100 acre-feet of emergency water storage. During these investigations, EDAW recommended the dam as eligible for the NRHP. In a follow-up data recovery plan, it was recommended that prior to alterations to the dam an Historic American Engineering Record (HAER) be completed.⁶³ This study is a result of that recommendation.

Fieldwork and historic research for this HAER was conducted between February and December 2003. Historical information was obtained from several places, including the San Diego Public Library, the San Diego Historical Society, and the Los Angeles Public Library. Among items reviewed were newspaper clippings, construction photographs, Water Authority Annual Reports, and back issues of *Southwest Builder and Contractor*. Original as-built drawings were also obtained from the City of San Diego, Water Department.

All documentation was completed for the Water Authority under the direction of EDAW. Christy Dolan, M.A. (historical archaeologist/historian for EDAW) prepared the written documentation. Photographer Chris Wray photographed the structure and the photographs are part of the field notes that accompany this survey.

⁶³ Willey and Dolan, 2002